TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 13, 2012

Mr. Gary G. Miller, Remedial Project Manager
U.S. EPA, Region 6
Superfund Division (6SF-RA)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Re: *Draft Toxicological and Epidemiological Studies Memorandum*, dated January 2012
San Jacinto River Waste Pits Federal Superfund Site
Harris County, Texas

Dear Mr. Miller:

The Texas Commission on Environmental Quality (TCEQ) Remediation and Toxicology Divisions have completed review of the January 2012 Draft Toxicological and Epidemiological Studies Memorandum. The Draft document was prepared by Integral Consulting Inc. and Anchor QEA, LLC. The TCEQ comments on the document are presented below. The section headings below correspond to those contained in the document and are followed by the TCEQ comments.

2.2 Types of Exposure, Figure 1, and Figure 2

This section discusses (and the Figures illustrate) exposure scenarios and whether or not they are considered potentially complete. As stated in previous comments, please note that TRRP does not distinguish between minor and significant pathways. If a pathway is considered to be complete, then it needs to be evaluated.

3 Approach to Selection of Toxicological Criteria

This section discusses the selection of toxicological criteria for each chemical of potential concern (COPC). However, please note that the Texas Risk Reduction Program (TRRP) rule (30 TAC §350.73(a)) defines a hierarchy for choosing toxicity factors, and that TCEQ has already compiled and made publicly available the toxicity factors that the TCEQ feel are most appropriate and follow the TRRP hierarchy.

This section also discusses the use of subchronic toxicological criteria when durations of less than 7 years are anticipated. TRRP does not allow for the use of subchronic toxicity factors, as indicated by the TRRP hierarchy for toxicity factors (30 TAC §350.73(a)) in which it is stated, "*The person shall use the chronic* [emphasis added] *human toxicity factors taken from the following hierarchy of sources...*". In order to use subchronic

toxicity factors, the potential responsible parties (PRPs) would need to get prior approval from the executive director, as indicated in 30 TAC §350.73(d), which states, "*Unless prior approval is provided by the executive director in accordance with §350.74(j)(2) of this title...to use a subchronic exposure duration...for a commercial/industrial property, the person shall not use subchronic toxicity factors.*" If the PRP's would like a deviance from the chronic TRRP toxicity factors, they will need to follow the procedure outlined in §350.74(j)(2), which includes, among other things, presenting the information to the executive director and public notification.

This section also states that only the dermal and ingestion routes are considered complete and significant for the baseline human health risk assessment (BHHRA). As stated in previous comments, please note that TRRP does not distinguish between minor and significant pathways. If a pathway is considered to be complete, then it needs to be evaluated quantitatively.

3.3 Selection of COPCH-Specific Toxicological Criteria

This section presents a hierarchy of toxicological sources considered in the selection of toxicological criteria for this document and states that it is consistent with TCEQ (2009) guidance. However, this hierarchy only lists three tiers and is therefore not consistent with the TCEQ TRRP hierarchy, which is defined in 30 TAC §350.73(a).

This section also discusses the selection of subchronic toxicological criteria. As stated above, TRRP does not allow for the use of subchronic toxicity factors, as indicated by the TRRP hierarchy for toxicity factors (30 TAC §350.73(a)) in which it is stated, "*The person shall use the chronic* [emphasis added] *human toxicity factors taken from the following hierarchy of sources...*" In order to use subchronic toxicity factors, the PRPs would need to get prior approval from the executive director, as indicated in 30 TAC §350.73(d), which states, "*Unless prior approval is provided by the executive director in accordance with §350.74(j)(2) of this title...to use a subchronic exposure duration...for a commercial/industrial property, the person shall not use subchronic toxicity factors.*" If the PRP's would like a deviance from the chronic TRRP toxicity factors, they will need to follow the procedure outlined in §350.74(j)(2), which includes, among other things, presenting the information to the executive director and public notification. This comment also applies the chemical-specific Sections and Section 6.7 Absence of Subchronic Toxicological Criteria as well.

4.1.2 History of Regulatory Process for Dioxins and Furans

This section mentions the EPA reference dose (RfD) for dioxin as proposed. It should be noted that since the release of this document the EPA RfD for dioxin has been finalized.

4.1.3.1.7 Discussion

This section states that the tolerable daily intake (TDI) of 2.3 pg/kg-day will be used as the toxicity factor to evaluate the potential carcinogenicity of tetrachlorinated dibenzodioxins (TCDD) and related compounds in the BHHRA. This is not consistent with TRRP. As stated in 30 TAC §350.76(a)(1) "*Due to the unique nature of the toxicity and/or exposure, the person shall use the COC-specific approaches described in this*

section for the following COCs: ...(C) polychlorinated biphenyls; ...(D) polychlorinated dibenzodioxins and dibenzofurans..." The specific cleanup levels for dioxins and furans are defined in 30 TAC §350.76(e)(3); the soil protective concentration level (PCL) for residential and commercial/industrial properties for all three tiers is 1 ppb and 5 ppb, respectively. These cleanup levels are based on the 1998 EPA directive "*Approach for Addressing Dioxin in Soil at CERCLA and RCRA Sites,*" and were determined considering the EPA SFo of 156,000 $(mg/kg\text{-}day)^{-1}$. Inherent in the TRRP cleanup values is the use of this toxicity factor, which is consistent with the TRRP hierarchy of toxicity factors. The proposed toxicity factor of 2.3 pg/kg-day is not consistent with TRRP or with the TRRP hierarchy of toxicity factors.

4.1.3.2.5 Discussion

This section states that the TDI of 2.3 pg/kg-day will be used as the toxicity factor to evaluate the noncancer hazards associated with exposures of TCDD and related compounds in the BHHRA. As with the previous comment, this is not consistent with TRRP. As stated in 30 TAC §350.76(a)(1) "*Due to the unique nature of the toxicity and/or exposure, the person shall use the COC-specific approaches described in this section for the following COCs: ...(C) polychlorinated biphenyls; ...(D) polychlorinated dibenzodioxins and dibenzofurans...*" The specific cleanup levels for dioxins and furans are defined in 30 TAC §350.76(e)(3); the soil PCL for residential and commercial/industrial properties for all three tiers is 1 ppb and 5 ppb, respectively. These cleanup levels are based on the 1998 EPA directive "*Approach for Addressing Dioxin in Soil at CERCLA and RCRA Sites,*" and were determined considering the EPA SFo of 156,000 $(mg/kg\text{-}day)^{-1}$. Inherent in the TRRP cleanup values is the use of this toxicity factor, which is consistent with the TRRP hierarchy of toxicity factors. The proposed toxicity factor of 2.3 pg/kg-day is not consistent with TRRP or with the TRRP hierarchy of toxicity factors; however, the use of the ATSDR MRL would be consistent with the TRRP hierarchy.

4.2 Polychlorinated Biphenyls

This section discusses the approaches that will be used to evaluate polychlorinated biphenyls (PCBs). As stated above, TRRP has specific criteria for the evaluation of PCBs (§350.76(a)(1)), and the provided approaches are not consistent with TRRP. 30 TAC §350.76(a)(1) states, "*Further, when congener concentrations are available, the contribution of dioxin-like polychlorinated biphenyls to total dioxin equivalents shall be considered. The person shall apply the toxicity equivalency factors specified in the following figure to the measured concentrations for each of the dioxin-like polychlorinated biphenyls. ... When addressing dioxin-like polychlorinated biphenyls in this manner, the person shall subtract the concentration of dioxin-like polychlorinated biphenyls from the total polychlorinated biphenyls concentration to avoid overestimating dioxin-like polychlorinated biphenyls by evaluating them twice.*"

5.1.3 Discussion

This section discusses evaluation of both inorganic and organic arsenic by calculating the percent of inorganic arsenic as 10 percent of the total arsenic concentration in tissue. Please note that TRRP does not distinguish between inorganic and organic arsenic.

The SFo and RfD provided for inorganic arsenic and are 1.5 (mg/kg-day) $^{-1}$ and $3x10^{-4}$ mg/kg-day, respectively.

5.7.2 Noncancer

This section gives the RfD for thallium as $1x10^{-5}$ mg/kg-day. Please note that TRRP has a toxicity factor of $8x10^{-5}$ mg/kg-day for thallium.

7 References

Editorial Comment: The TCEQ 2011 citation is not correct. This reference was written by the Toxicology Division, which is located at TCEQ headquarters in Austin. The citation incorrectly gives Channelview, TX as the location. To be correct, the citation should give Austin, TX as the location.

Table 3

Editorial Comment: Chromium (VI) and Copper have the RfD's listed as 0.0025 and 0.037, respectively. This is not consistent with the text or with TRRP RfDs. Section 5.3.2.2 states the chromium (VI) RfD is 0.003, and Section 5.4.2 states the copper RfD is 0.04. Please make sure to use the correct RfD for calculations (i.e., the RfD stated in the text).

If you have any questions please contact Tracie Phillips at 512-239-2269 or myself at 512-239-6368.

Sincerely,

Ludmila Voskov, P.G., Project Manager
Superfund Section
Remediation Division
Texas Commission on Environmental Quality

LV/sr

cc: Vickie Reat, TCEQ
Tracie Phillips, TCEQ